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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,311	11/20/2003	Knut Meyer	BC1015 US DIV	9767

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E I DU PONT DE NEMOURS AND COMPANY
LEGAL PATENT RECORDS CENTER
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WILMINGTON, DE 19805

EXAMINER

BAUM, STUART F

ART UNIT PAPER NUMBER

1638

DATE MAILED: 08/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/718,311

Applicant(s)

MEYER ET AL.

Examiner

Stuart F. Baum

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-14, 16, 17 and 19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19 is/are allowed.
- 6) ☒ Claim(s) 11, 13, 14 and 16 is/are rejected.
- 7) ☒ Claim(s) 12 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/20/2003</u> . | 6) <input checked="" type="checkbox"/> Other: <u>sequence search results</u> . |

DETAILED ACTION

1. Claims 11-14, 16-17, and 19 are pending.
2. Applicant's election without traverse of Group I, claims 11-14, 16-17, and 19 in the reply filed on 5/18/2006 is acknowledged.

Claims 1-10, 15 and 18 have been canceled.

3. Claims 11-14, 16-17, and 19 including SEQ ID NO:15, 4, 7, 8, and 16 are examined in the present office action.

Priority

4. The Office acknowledges Applicants' claim for domestic priority to application 09/855,341 filed 5/15/2001. Applicant is requested to amend the first paragraph to include the present status of said application, i.e., include the U.S. Patent Number.

Specification

5. Objection is made to the specification for not incorporating SEQ ID NO's when referring to nucleic acid or amino acid sequences. 37 CFR 1.821(d) requires the use of the assigned sequence identifier (e.g. SEQ I.D. NO: X) in all instances where the description or claims of a patent application discuss sequences. In the present application, Figure 1 includes three amino acid sequences which are not identified by sequence identifier. Correction is requested.

Claim Objection

6. Claim 12, second line is objected to for reciting "for the" instead of --forth--.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 11, 13-14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heide et al (1995, German Patent Number DE 44 23 022 C1, USPTO English translation) in light of Pichersky et al (1993, PNAS 83(11):3880-3884).

The claims are drawn to a chorismate pyruvate lyase expression cassette comprising a nucleic acid molecule encoding a ribulose-1,5-bisphosphate carboxylase small subunit chloroplast targeting sequence having an amino acid sequence of SEQ ID NO:15 operably linked to a nucleic acid molecule encoding a chorismate pyruvate lyase enzyme of SEQ ID NO:4, a plant comprising said expression cassette, or wherein the plant is any one of the plants listed in claim 14, or an isolated nucleic acid fragment encoding a protein comprising a chloroplast targeting sequence fused to the N-terminus of the mature CPL protein has the sequence of SEQ ID NO:15.

Heide et al disclose an expression cassette comprising a nucleic acid encoding a chorismate pyruvate lyase, wherein the nucleic acid encodes a polypeptide sequence which exhibits 100% sequence identity to Applicants' SEQ ID NO:4 (see enclosed sequence search results), and wherein the nucleic acid sequence of Heide et al is operably linked to a nucleic acid

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sequence encoding a chloroplast transit peptide (page 6 of translation, 2nd full paragraph). Heide et al disclose a tobacco plant transformed with said cassette (pages 6-8 of translation). Heide et al also disclose other plants that can be transformed, e.g., corn or sugarbeets (page 3 of Heide et al translation, 4th paragraph).

Heide et al do not teach a nucleic acid encoding the amino acid sequence of SEQ ID NO:15, wherein said sequence is operably linked to SEQ ID NO:4, wherein SEQ ID NO:4 encodes a CPL protein.

Pichersky et al teach a nucleic acid sequence encoding a chloroplast transit peptide that exhibits 97% amino acid identity with SEQ ID NO:15 (see enclosed sequence search results). The Office contends that the sequence of Pichersky et al would actually encoded a transit peptide exhibiting 100% identity with Applicants' SEQ ID NO:15 because the sequence of Pichersky et al encodes an amino acid sequence that is only one amino acid shorter than Applicants' SEQ ID NO:15. Given that Pichersky et al cite articles disclosing nucleic acids encoding the small subunit of the ribulose-bisphosphate carboxylase gene and given that Pichersky et al themselves disclose nucleic acid sequences encoding the small subunit of the ribulose-bisphosphate carboxylase gene from tomato, the Office contends that the one amino acid difference is due to an annotation error. Therefore, the Office considers the sequence of Pichersky et al to encode Applicants' SEQ ID NO:15 absent evidence to the contrary.

Given the recognition of those of ordinary skill in the art of the value of transforming a plant with a nucleic acid encoding a chorismate pyruvate lyase from E. coli, wherein increased levels of said lyase increase the antiviral and/or bacterial and/or fungicidal and/or insecticidal, and wherein said nucleic acid is operably linked to a nucleic acid encoding a transit peptide from

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the small subunit of the ribulose-bisphosphate carboxylase gene as taught by Heide et al (page 4 of Heide et al translation, 2nd and 3rd paragraph; page 6, top paragraph and 2nd full paragraph), one of ordinary skill in the art would recognize that one transit peptide can be substituted for another given the teachings of Pichersky et al, who teach multiple nucleic acids encoding transit peptides associated with the small subunit of the ribulose-bisphosphate carboxylase from tomato (page 3880, left column, 1st paragraph).

Thus the claimed invention would have been *prima facie* obvious as a whole to one of ordinary skill in the art at the time it was made, especially in the absence of evidence to the contrary.

8. Claims 12, 17 and 19 are deemed free of the prior art, given the failure of the prior art to teach or reasonably suggest a chorismate pyruvate lyase expression cassette comprising a chimeric gene comprising a nucleic acid molecule encoding a ribulose-1,5-bisphosphate carboxylase small subunit chloroplast targeting sequence having an amino acid sequence of SEQ ID NO:15, operably linked to a nucleic acid encoding SEQ ID NO:4, wherein the chimeric gene encodes a polypeptide of SEQ ID NO:8, or an isolated nucleic acid having the sequence of SEQ ID NO:7, or a nucleic acid encoding the amino acid sequence of SEQ ID NO:16.

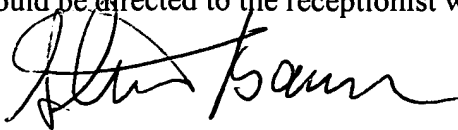
9. Claim 19 is allowed.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stuart F. Baum whose telephone number is 571-272-0792. The examiner can normally be reached on M-F 8:30-5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached at 571-272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600.

A handwritten signature in black ink, appearing to read 'Stuart F. Baum', is written over the printed name and title.

Stuart F. Baum Ph.D.

Patent Examiner

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July 10, 2006

STUART F. BAUM, PH.D.
PATENT EXAMINER